has taken measures to generate power from sources like Wind Energy, Refuse Incineration. Biomass based Gasifiers, Community / Institutional Biogas Plants etc. So far a capacity of 3. 63 MW from Wind Energy has been established and over 8 million units of electricity have been fed into the respective grids. More projects are underway and an aggregate installed capacity of 10 MW is expected to be achieved during this financial year. Power generation from biomass-based Gasifiers of the capacity of 1. 3 MW has been established; a 3. 75 MW power plant based on incineratlion of municipal waste has been established in New Delhi; 10 MW power generation based on rice straw has also been taken up, Projects for demonstration of small power plants based on solar energy have also been taken up. More projects on power generation based on non-conventional energy sources can be taken up provided additional resources are made available.

(d) Does not arise.

Solar Power Plants in Punjab

222. SHRI HARVENDRA SINGH HANSPAL: Will the Minister of ENERGY be pleased to state:

(a) whether the Punjab State Electricity Board propose to establish five solar plants of "30 MW capacity in the State;

(b) if so, whether the Central Government have finally granted permission to set up solar power plants in Punjab;

(c) how much allocations the Central Government propose to make for these plants; and

(d) to what extent the steep power crisis in Punjab is likely to be solved by these solar power plants?

THE MINISTER OF ENERGY (SHRI VASANT SATHE): (a) to (d) Several State Governments including Punjab have proposed to establish Solar Thermal Power Plants in Megawatt capacity range. Already a pre-feasibility report On 30 MW Solar thermal power plant has been prepared and is under consideration. A decision will be taken in due course of time after detailed examination of various aspects including financial' aspect. Depending upon the size and number of such power plants installed, the load on existing power supply would be reduced proportionately.

Low cost technology for utilising highitigh ash coal

223. SHRI HARVENDRA SINGH HANSPAL: Will the Minister of ENERGY be pleased to state:

(a) whether an advanced low cost technology which can effectively utilise high ash Indian coal has been recently developed by an American company as 'reported in the Times Of India' dated 27th October, 1987;

(b) if so, whether the Indian Scientists and Engineers propose *to* get the know-how of the advanced technology; and

(c) if so, what are the details in this regard?

THE MINISTER OF ENERGY (SHRI VASANT SATHE): (a) to (c) Information is being collected and will be laid on the Table "of the House.

Power shortage in Southern States

224. SHRI D. B. CHANDRE GOWDA: Will the Minister of ENERGY be pleased to state: '

(a) whether the Southern States in the country are facing acute power shortage which may become critical in the future;

(b) whether the Central Govern ment have failed to provide adequate assistance to the Southern States to meet the situation; and

(c) what further steps the Central Government propose to take to provide all possible assistance to the Southern States?

f THE MINISTER. OF STATE IN THE DEPARTMENT OF POWER IN-THE MINISTRY OF ENERGY (SHRIMATI SUSHILA ROHATGI): (a) The power shortage faced by the States in the Southern region during April to October 1987 is indicated below:

Name of the	% shortage (April-October, 1987)
Andhra Pradesh	9.0
Karnataka	26.7
Kerala	13.9
Tamil Nadu	11.2

In view of the low reservoirs levels in most of the reservoirs in the Southern Region, the States in the Southern Region are expected to face power shortage of varying degrees in the coming months.

(b) and (c) AH efforts are being made to provide power to the States in the Southern Region from the Central Sector Stations of Raraagundam STPS, MAPP and Neyveli Second Mine Cut as per their shares. Assistance was also provided to Karnataka from Maharashtra to the extent possible. In order to further improve the availability of power in the (Southern Region, various steps are being taken which include expeditious commissioning of additional generating capacity, early stabilisation of newly commissioned units, optimum utilisation of existing capacity, reducing transmission and distribution losses and implementing energy conservation and demand management measures.

Campaign for- Harnessing Fuel from Waste Materials

225. SHRI PARVATHANENI UPENDRA: Will the Minister of ENERGY be pleased to state:

(a) whether Government have plans to launch a mass awareness campaign for harnessing fuel from waste materials like cow dung crop residues,, etc. and for large scale use of solar and other renewable sources of energy; and

(b) if so, what are the details thereof?

-THE MINISTER OF ENERGY (SHRI VASANT, SATHE): (a) and (b) Yes, Sir. Government has already undertaken mass awareness programmes through various media for harnessing fuel from waste materials like cow dung, crop residues etc. and for large scale use UE solar and other renewable sources of energy.

These programmes include arranging exhibitions in fairs and festivals both in urban and rural areas; organising and participating in workshops, seminars and conferences; printing of posters, brochures and booklets in different languages for free distribution; making and showing documentary and video films through Doordarshan and other agencies; Radio jingles and TV spots.

Implementation of non-conventional Energy Programmes

226. SHRI AJIT P. K. JOGI: Will the Minister of ENERGY be pleased to state:

(a) what proportion of the total energy requirement of the country is met by the so called non-conventional energy sources;

(b) in view of a. very small share of the non-convetionaj energy sources vis-a-vis the total requirement of the nation what steps are being taken to augment this proportion and aleo-